Basis of Estimate (BOE) Guide

1.   Overview

Provide a high level description of the project that is represented by this Basis of Estimate (BOE). Include all of the following project information within that description:

- The purpose
- The physical location
- Where the project is located within the organizational structure
- The sponsors of the project
- The expected start and finish dates

Provide a brief description of the estimate(s) to be performed, including the purpose of the estimate and the methodology to be used.

2.   Scope

The project scope is based on the Work Breakdown Structure (WBS) already created for the project.   Select the major WBS items that will apply to the estimate to be prepared and list for each the following information:

- WBS number
- Task/Item Title
- Period of performance
- Detailed description, including associated major trades

3.   Estimate Base Sources

The base sources (Design Basis, Planning Basis, and Cost Basis) are the referenced documentation that forms the foundation for the estimate to be performed. For each basis type, list all the items that will be used to form the estimate. For short items, copy the information to the BOE. For larger items provide references or links to documents (include copies of as many as is possible in the Attachments section of this document). Each item listing must include its name, a brief description, document number and version where applicable. For each item, if specific details where obtained from that particular item, list the information obtained from that item. This will make finding that information much easier later on.

3.1.   Design Basis

List the design items that will be used to form the estimate.
Examples of the types of things that might be included:

- design drawings
- requirements
- operational concept documents
- specifications
- equipment and tools lists
- a list of deliverables

3.2. Planning Basis

List the project plans and schedules that will be used to form the estimate. Discuss any management, development, and acquisition strategies not covered by a plan. Discuss all planning assumptions.

3.3. Cost Basis

In the subsections below, describe the methods that will be used and the information sources for the category listed. Include depreciation calculations where appropriate. For all numbers used, clearly identify which are estimates and the method of estimating.

Examples of typical cost methods:
- Catalog price (include catalog name and version, vendor, item's catalog number and catalog price)
- Vendor quote (include vendor name, quote number, quote validity dates)
  - Exact price or
  - Rough Order of Magnitude (ROM) estimate or
  - Not To Exceed (NTE) price boundary
- Parametric estimate [i.e., a costing equation](Show equations and input values used along with the source references for the input values.)
- Detailed breakdown of time and materials to complete task (Show details.)
- Analogy [similar to one built previously] (Describe the previous item in enough detail to show that it is similar to the new item and describe how the cost was calculated.)
- "Engineering judgment" [SWAG] (Describe the thought process used to obtain the estimate.)

Other methods can also be used – describe them fully.

3.3.1. Material

List all the materials that go into managing the project and creating and maintaining the product, work products, or service. This includes all consumable items such as paper, media (e.g., CD-R, DVD-R, tapes), and ink cartridges. Include raw materials that go into any hardware component of the product (not applicable for software-only products). Include COTS software that will be embedded in the product (e.g., embedded database servers). Estimate the quantity needed for each item. Include any delivery information (e.g. UPS, freight, hand) Describe the costing methods and sources as discussed above.

3.3.2. Equipment

List all equipment (both hardware and software) that will be used to manage the project and to develop and maintain the product (do not duplicate items listed in the previous section – list those that are dedicated to development or management purposes only). Describe the costing methods and sources as discussed above.

3.3.3. Labor

Describe all labor that will be used to manage the project and to develop and maintain the product or service. Use Full Cost Equivalent (FTE) and/or actual dollar amounts as appropriate.

3.3.4. Travel

Describe all the travel that will be required for the project. List the purpose, estimated start date, trip destination, estimated length of stay, and number of people expected for each trip. Describe the costing methods and sources as discussed above.

3.3.5. Transportation

If equipment, material or products will need to be transported, describe it here. Do not include delivery charges information that was covered in section 3.3.1. An example of this type of cost would be if you had to send a prototype to a customer for demo or evaluation. Another example would be if a sub-component had to be transported from one facility to another for integration into the main system.

3.3.6. Training

Describe all the training that will be required to complete the project. Include training description, expected dates, duration and numbers of participants.

3.3.7. Facilities

Describe the facilities that will be required to complete the project. Include offices, labs, assembly, and storage areas. For each facility, as a minimum, list the requirements for surface area, power, communication, access, security and furniture. Describe any special requirements for each facility,

4. Allowances

Describe any allowances that will be included in the estimate. Typical allowances include intentional overbuying (i.e., purchasing more than the minimum required to make up for typical losses or unexpected contingencies), expected advances for equipment, technology or process or anything that is over-specified to account for tolerances or predicted changes. Describe any calculations that will be made to decide the size of an allowance that will be made. Include in the description any conditions that contribute to the need for an allowance.

5. Assumptions

If there will be any assumptions made which were not discussed elsewhere describe them here. Go into enough detail to fully justify those assumptions, including any history that contributes to the belief in the correctness of those assumptions. [indicate assumption to be made elsewhere in their sections]

6. Exclusions

Discuss any costs that were not included in the estimate with the rationale for omission. These are costs that affect the project which are not within the scope of the project. A hypothetical example of this would be when a reorganization of a directorate forces some costs on a project to accommodate the change (e.g., an update of documentation). The costs might be excluded from the project estimate since they are not related to the task of the project, and therefore charged to a different funding source.

7.   Deviations

Discuss any deviations from standard estimating practices here with the rationale for the deviations. Deviations must be justified by showing both the need for the deviations and the correctness of the alternate methods used.

8.   Risks and Opportunities (RO)

Discuss those high-risk or high-opportunity items that may affect the validity of the estimate. If a separate RO analysis is documented, reference it here. For each RO item provide, as a minimum, the RO description, the probability of it occurring, the conditions that might precipitate the occurrence, the immediate consequences of the RO occurring, and the impact if the RO occurs.

9.   Contingency Reserves

Discuss the contingency reserves that will be set aside to cover both the known risks and unexpected events (due to project uncertainties) included in the estimate and the methods used to calculate the amounts provided to cover them. Describe any source materials used for reference. Assume for the purposes of this section that the scope of the project will not change.

10.   Management Reserve

Discuss how the management reserve (to cover potential changes in project scope) included in the estimate was calculated. Show the methods used and describe any source materials used for reference.

11.   Reconciliation

If this is not the first estimate of a particular type for a project, explain any differences between the current and previous estimates. Examples of topics to discuss include changes in source materials, errors made, and changes in assumptions.

12.   Benchmarking

Investigate and list here any comparable benchmarks that exist for the current type of estimate. If any comparable benchmarks exist, describe how well this estimate matches with established benchmarks. Discuss and explain any variances from the existing benchmarks.

13.   Quality Assurance

Describe all quality assurance activities associated with preparing the estimate, such as completed and planned reviews. Discuss the types of reviews, the participant, and the outcome of the review, including resolutions of any problems discovered.

14.   Estimating Team

Provide contact information for all who participated in preparing the estimate. This information should include names, telephone numbers, email addresses, and their relevant backgrounds/positions at a minimum.

15.   Attachments

15.1.   Documents

Attach copies of all documentation used to prepare the estimate or provide references that include the document name, revision, and date of issue. It is highly recommended that this BOE and copies of all relevant documentation be kept together in a single folder (physical or electronic) if possible (or two folders if some things are only available electronically and others only as a physical copy).

15.2.   Additional

Attach any estimate analysis documents prepared for the estimate but not included in the estimate itself. This would include any worksheets used in performing the estimate.